



4.2.1 Classwork

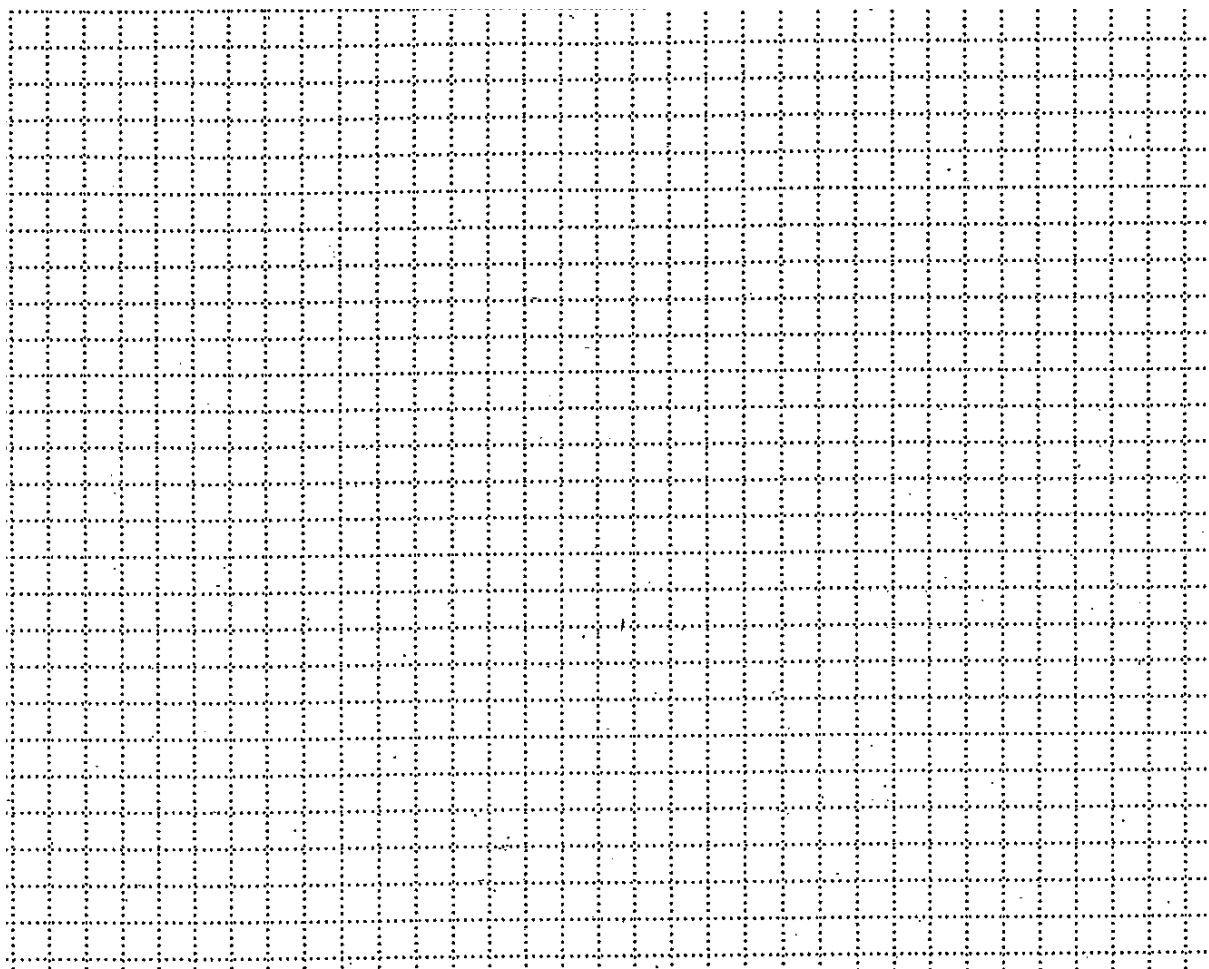
Name _____ Date _____

How can I transform any graph?
Transforming other parent graphs

today's big goal Transform the graphs of $y = b^x$, $y = \frac{1}{x}$, $y = \sqrt{x}$, and $y = x^3$.

4-59 & 60 Investigation

My parent function: _____ Name of its function family: _____



Domain:

Range:

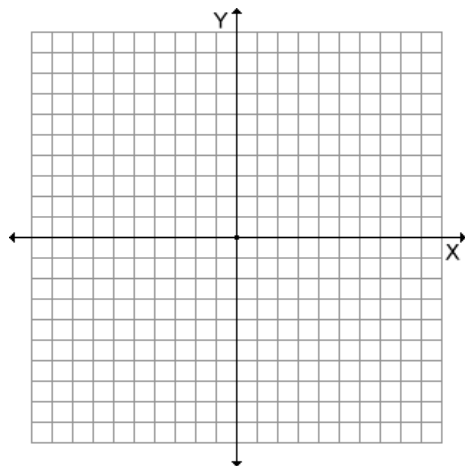
Asymptotes (also mark on graph):

Important (x, y) points (also mark on graph):

4-61 Possible transformations

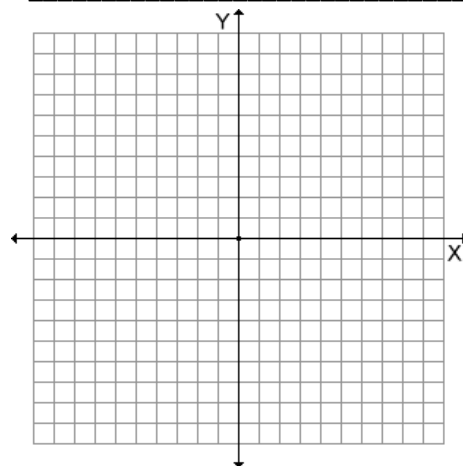
Find and graph an equation that will **shift** your parent function **left or right**. (Graph parent function first, then the shifted one – you should have TWO graphs on the grid!)

Equation: _____



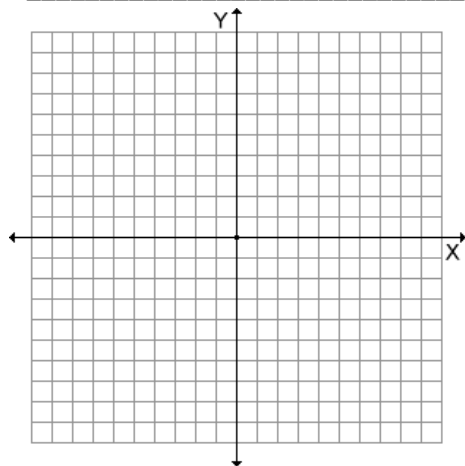
Find and graph an equation that will **shift** your parent function **up or down**. (Graph parent function first, then the shifted one – you should have TWO graphs on the grid!)

Equation: _____



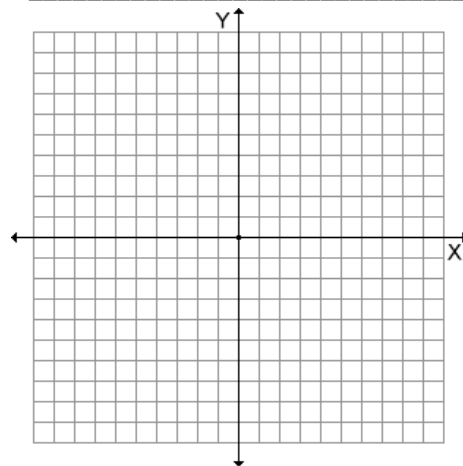
Find and graph an equation that will **stretch or compress** your parent graph **vertically**. (Graph parent function first, then the shifted one – you should have TWO graphs on the grid!)

Equation: _____



Find and graph an equation that will **flip** (reflect) your parent graph **upside-down**. (Graph parent function first, then the shifted one – you should have TWO graphs on the grid!)

Equation: _____



4-62

One way of writing a general equation for a parabola is $y = a(x - h)^2 + k$. This equation tells you how to start with the parent graph $y = x^2$ and shift or stretch it to get any other parabola.

- a. Explain what each parameter represents in the graph of a parabola:

a:

h:

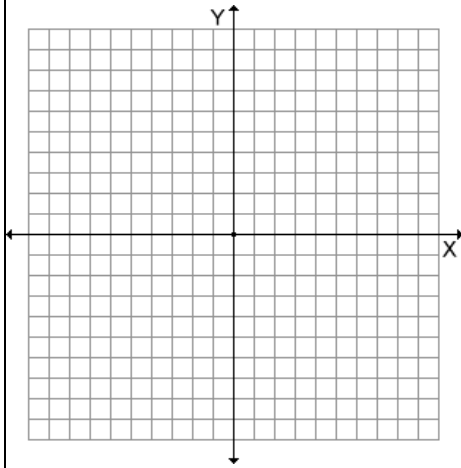
k:

- b. As a team, write general equations for each given parent equation on the next page. Be ready to explain how your general equations work; that is, tell what effect each part has on the orientation (right-side-up or upside-down, relative size (stretched or compressed), horizontal location (left or right shift), and vertical location (up or down shift).

4-63 My Parent Functions!

Parent function: $y = x^2$ **Family:** Quadratic

Graphing Form: _____

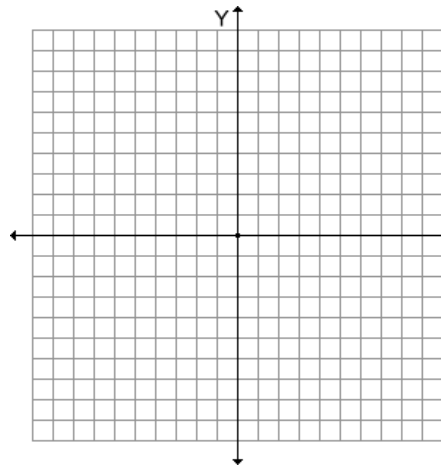


Locator point:

Any other
interesting facts
about the graph (line
of symmetry, etc):

Example:

Equation: _____

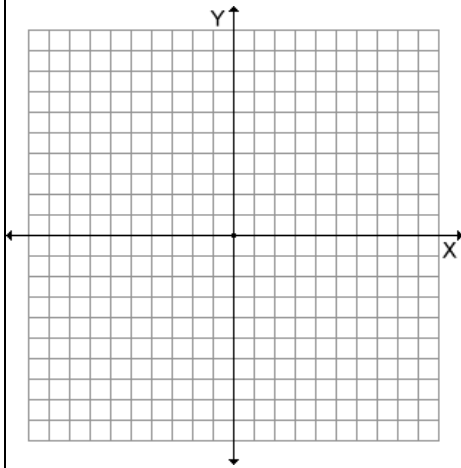


Domain:

Range:

Parent function: $y = x^3$ **Family:** Cubic

Graphing Form: _____

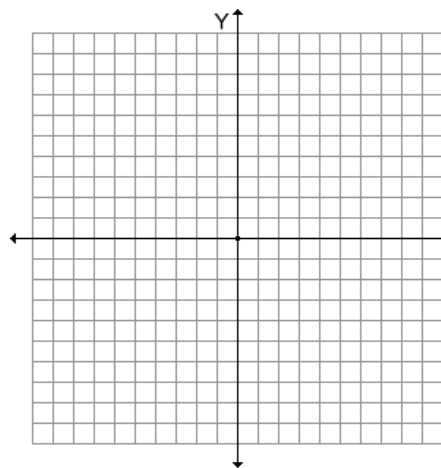


Locator point:

Any other
interesting facts
about the graph (line
of symmetry, etc):

Example:

Equation: _____

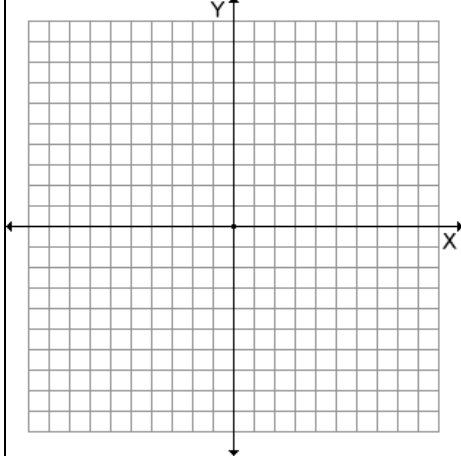


Domain:

Range:

Parent function: $y = \frac{1}{x}$ **Family:** Reciprocal

Graphing Form: _____

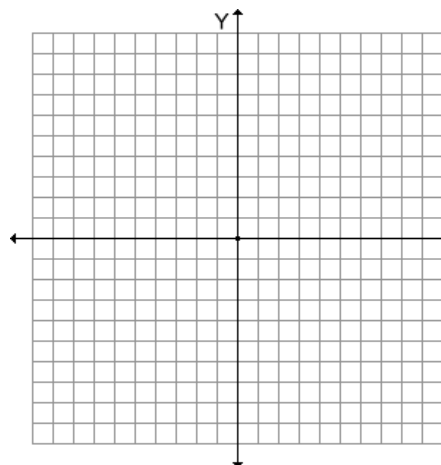


Locator point:

Any other
interesting facts
about the graph (line
of symmetry, etc):

Example:

Equation: _____



Domain:

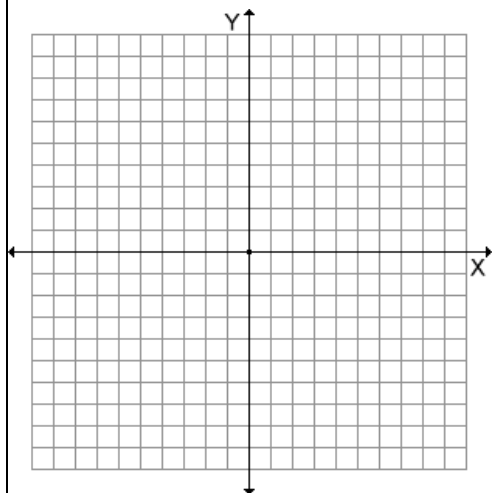
Range:

Asymptotes:

Parent function: $y = \sqrt{x}$

Family: Square Root

Graphing Form: _____



Locator point:

Any other

interesting facts

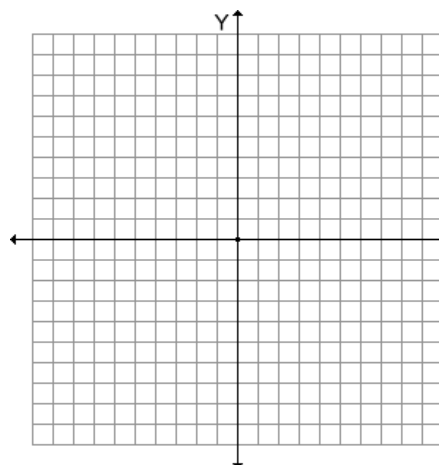
about the graph

(line of symmetry,

etc):

Example:

Equation: _____



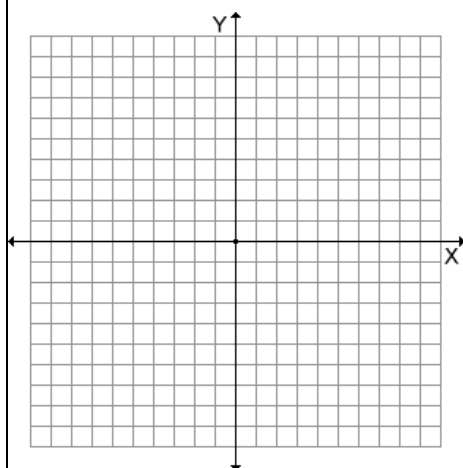
Domain:

Range:

Parent function: $y = b^x$

Family: Exponential

h, k Form: _____



Locator point:

Any other

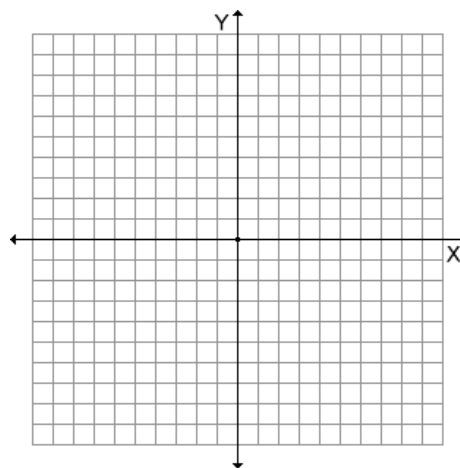
interesting facts

about the graph (line

of symmetry, etc):

Example:

Equation: _____



Domain:

Range:

Asymptotes:

4-63

Our problems for other teams to graph (*write in equations for each family of functions that other groups can practice graphing*)

Quadratic	Cubic
Square Root	Exponential
Reciprocal	